

Gula wider with more gradually demarcated anterior portion; specimens usually smaller and with tips of mandibles less hooked*Reticulitermes hageni* Banks

Notes on the North American Species of the *Zodion Obliquefasciatum* Group (Diptera: Conopidae).

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The present paper is the first contribution based on the study of a large number of specimens of the genera *Zodion* and *Occemyia* from the collections listed below. The material was either borrowed by Field Museum through the courtesy of Orr Goodson, Acting Director, and W. J. Gerhard, Curator of Entomology, or loaned to the author through the kindness of the individuals listed.

C. F. Adams, American Museum of Natural History, California Academy of Sciences, S. Camras, Chicago Academy of Sciences (H. K. Gloyd), Colorado State College (M. T. James), H. Dybas, Field Museum, Illinois State Natural History Survey (H. H. Ross), Iowa Wesleyan College (H. E. Jaques), B. Krogh, Museum of Comparative Zoology, North Carolina Department of Agriculture (C. S. Brimley), Academy of Natural Sciences of Philadelphia, G. Steyskal, United States National Museum, and Utah State Agricultural College (G. F. Knowlton).

The genus *Zodion* in America north of Mexico may be conveniently divided into three groups characterized as follows:

Thorax light colored with black spots*pictulum*.
 Thorax usually dark with two relatively wide light colored stripes*Obliquefasciatum* Group.
 Thorax usually light with relatively narrow dark stripes or unmarked*Fulvifrons* Group.

Some specimens of the *Obliquefasciatum* Group have the dark thoracic pattern obliterated by white pollen so as to resemble species of the *Fulvifrons* Group very closely, and have been so identified in collections. Such individuals may be distinguished

by the absence of any trace of the pair of anterior submedian thoracic lines usually present in the Fulvifrons Group species, and by the specific abdominal patterns of the species of the Obliquefasciatum Group. The female genital plate is very short, wide, and thick, more so than in any of the species of the Fulvifrons Group examined. The striations (rows of short, closely set bristles) completely cover the posterior surface of the plate so as to meet the striations of the sixth sternite.

The great amount of variation in *Zodion obliquefasciatum* with its melanistic phase has prevented the recognition of the following new form which may be known as:

***Zodion cyanescens* new species.**

Female: Length 10 mm. Face, cheeks, and lower occiput yellowish white, slivery along the adjacent orbits. Width of cheeks $\frac{1}{2}$ - $\frac{3}{4}$ times the eye-height. Lower two-thirds of the front orange yellow, upper one-third of front brown to black. Upper occiput brown with orange medially to entirely black, covered with yellowish gray pollen. Antennae orange, the first joint more brownish, the second joint more yellowish. Arista orange, the base black. Proportions of the antennal joints approximately 1:3:2. Proboscis black, $1\frac{3}{4}$ -2 times the head-height. Palpi black, with black hair, as long as the greatest width of the proboscis. Thorax black; reddish at humeri, base of wings, and venter of the scutellum; yellowish pollinose pleural stripe, sides of mesonotum, pair of dorsal stripes, and dorsum of the scutellum. Abdomen black, reddish at very base of 1st segment and brownish at the lateral margins of the 1st, 2nd, and 3d segments, covered with oblique light bluish pollinose markings as follows: 2nd segment confluent dorsally and narrowing to a stripe along lateral posterior edge, 3d segment widely separated dorsally, 4th segment all but two triangular spots dorsally and anterior corners, 5th segment dorsal distal portion, 6th segment most of dorsal surface. Coxae reddish, yellow pollinose anteriorly, brown to black posteriorly. Femora red, brown to black dorsally and yellow pollinose ventrally. Tibiae largely yellow pollinose. Tarsi blackish, yellowish ventrally, at base, and at sides of the segments. Pulvilli yellow;

claws yellow with black tips. Wings dark gray, veins brown to blackish, except at base. Base of wings yellowish orange; calypters yellow. First posterior cell open (usually) or closed at the margin. Halteres yellow orange.

Male: Similar to the female, but black of the abdomen more extensive, and the pollen on the distal portion of the abdomen more whitish. One abnormally small male is 7 mm. long.

Closest to *Zodion obliquefasciatum* which it replaces in the southeastern states, from which it differs by the darker color in general, and the bluish instead of white pollinose markings and black rather than rufous coloration of the abdomen.

Holotype: Female, NORTH CAROLINA: Smokemont, July 20, 1923, J. C. Crawford. *Allotype*: Male, North Carolina, Smoke-mont, July 20, 1923, T. B. Mitchell. [Both from the North Carolina Department of Agriculture; deposited in the Field Museum.] *Paratypes*: Male, New Jersey: Riverton, C. W. Johnson, [Am. Mus.]; three males, N. C.: Tarboro, July 30, 1924, T. B. Mitchell or W. B. Mabee (on *Helenium tenuifolium*), [N. C. Dept. Ag., one deposited in Kansas U. Coll.]; female, N. C.: La Grange, Aug. 27, 1921, T. B. Mitchell, [N. C. Dept. Ag.]; two males, N. C.: Willard, July 6, 1922, T. B. Mitchell (on *Senecio*), [N. C. Dept. Ag., one in author's coll.]; four males, N. C.: Raleigh, July 18-22, 1918-26, C. S. Brimley, [N. C. Dept. Ag., one in the Acad. Nat. Sci. Phila., one in Calif. Acad. Sci.]; male, N. C.: Statesville, mid July, 1919, F. Sherman, [N. C. Dept. Ag.]; female, N. C.: Newton, July 25, 1921, T. B. Mitchell, [N. C. Dept. Ag., in author's coll.]; female, N. C.: Swannanoa, July 10, 1913, C. L. Metcalf, [N. C. Dept. Ag.]; male, N. C.: Hendersonville, July 8, 1926, J. C. Crawford, [N. C. Dept. Ag.]; male, N. C.: Raleigh, July 8, 1903, P. Morse Coll., [M. C. Z.]; male, North Carolina, Morrison, [Nat. Mus.]; female, S. C.: Florence, July 19, 1935, C. F. Rainwater, [Nat. Mus.]; female, Ga.: Atlanta, Aug. 9, 1938, P. W. Fattig, [Nat. Mus.]; male, Fla.: Monticello, Aug. 16, C. Fairchild, [M. C. Z.]; female, Miss.: Utica, Aug., [Nat. Mus.]; male, Miss.: West Point, Sept. 16, 1904, F. C. Bishopp, [Nat. Mus.].

Most of the specimens correspond to the "melanistic" phase of *obliquefasciatum* described below, but three of the males are analogous to the "rufous" phase of that species by virtue of the brownish instead of the black of the proximal abdominal segments. These represent variation toward *obliquefasciatum*. Several specimens of *obliquefasciatum* from Illinois show variation toward the new species, one in particular having rather bluish pollen and very little rufous on the abdomen. Other intermediate specimens will undoubtedly be found where the ranges of the two species meet.

It was a dark specimen of *cyaneescens* from Alabama that caused Kröber (Arch. Nat., 81A, h. 4, p. 104) to question the validity of *Zodion albonotatum*.

ZODION OBLIQUEFASCIATUM (Macquart)

Myopa obliquefasciata Macquart, Dipt. Exot., Suppl. 1, 141, 1845. [Texas.]

Zodion splendens Jaennicke, Neue Exot. Dipt., 405, 1867. [Mexico.]

Zodion leucostoma Williston, Trans. Conn. Acad. VI, 380, 1885. [Western Kansas.]

This species is characterized by the rufous abdominal coloration with white pollinose markings. It is an extremely variable species, most of the individuals of which fall into one of three main types as follows:

"Melanistic" phase: Darker individuals averaging larger in size, in which the abdomen has relatively wide black markings.

"Rufous" phase: Lighter individuals averaging intermediate in size, in which the abdomen is mainly rufous with brown markings, or some blackish markings on the distal segments.

"Pollinose" phase: Very light individuals averaging smallest in size, in which the abdomen is usually rufous, and whose dark thoracic pattern is covered with gray or whitish pollen leaving two or three dark stripes. These are the individuals which resemble species of the Fulvifrons Group.

The distribution and frequency of the phases is as follows: Illinois (26 M, 9 R), Iowa (1 M, 1 R), South Dakota (1 M), Nebraska (1 M, 1 R), Kansas (1 M, 1 R, 1 M-R, 1 M-R-P),

Arkansas (1 R), Louisiana (1 R), Texas (5 M, 7 R, 1 P, 1 M-R), New Mexico (2 M, 4 R, 2 P, 1 R-P), Arizona (2 P), Colorado (1 M, 10 R, 10 P, 1 M-R, 1 M-P, 1 R-P), Utah (2 R), Nevada (4 R), California (9 R, 1 P, 1 M-R).

ZODION ALBONOTATUM Townsend.

Zodion albonotatum Townsend, Jour. N. Y. Ent. Soc. V, 175, 1897. [Brownsville, Texas.]

This species is characterized by the presence of yellowish pollen on the distal abdominal segments, and by the absence of any rufous. The base of the abdomen may have some bluish pollen. The abdomen also lacks the oblique pattern of the markings of the two previous species.

Material examined:

Arizona: Tucson (1 ♀, melanistic phase); Colorado: Jim Creek, near Boulder—6,400' (2 ♂, pollinose phase).

Notes on *Hubbellia marginifera* (Orthoptera: Tettigoniidae)

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Upon receiving some additional material of the interesting and rare North American katydid, *Hubbellia marginifera* (Walker), studies were started to ascertain its relationship to other forms of the group. However, it has been impossible to complete this work at present, but it is thought advisable to publish such distributional and ecological information as has been gathered, and to note certain variation observed.

Four additional females of this species were collected two miles north of Myrtle Beach, Horry County, South Carolina, between July 22 and 26, 1940 by J. W. Cadbury III. The only other exact locality from which the species is known is "Camp Torreya," Township 2 N-R 7 W, Liberty County, Florida. A single female was taken at this locality in 1925 by T. H. Hubbell, and was described by Hebard¹ as the synonymous *praestans*. Uvarov² in 1940 pointed out the synonymy of

¹ Trans. Amer. Entom. Soc., LIII, p. 3, [1927].

² Fla. Ent., XXIII, p. 11, [1940].